OF CHEMISTRY

VOLUME 7

MELBOURNE



AUSTRALIAN JOURNAL OF CHEMISTRY

Published by the Commonwealth Scientific and Industrial Research Organization, in collaboration with the Australian National Research Council and the Royal Australian Chemical Institute, and under the general direction of the Editorial Board (Dr. N. S. Noble (Chairman), Professor J. S. Anderson, Professor Sir Macfarlane Burnet, Professor L. H. Martin, and Professor J. G. Wood). Volumes 1 to 5 of the Australian Journal of Physics and the Australian Journal of Chemistry issued as the Australian Journal of Scientific Research, Series A: Physical Sciences.

Issued quarterly, 30/- per annum

EDITORIAL ADVISORY COMMITTEE

Chairman and Editor: Dr. N. S. Noble

Members: Professor J. S. Anderson

Professor N. S. Bayliss

Professor R. J. Le Fèvre

Dr. I. W. Wark

All inquiries and manuscripts should be forwarded to:

The Editor, Australian Journal of Chemistry, Commonwealth Scientific and Industrial Research Organization, 314 Albert Street, East Melbourne, C.2, Victoria

Printed by Australasian Medical Publishing Company Limited, Sydney

CONTENTS

NUMBER 1, FEBRUARY 1954

	PAGE
The Behaviour of Fluids of Quasi-Spherical Molecules. I. Gases at Low Densities. By S. D. Hamann and J. A. Lambert	1
The Behaviour of Fluids of Quasi-Spherical Molecules. II. High Density Gases and Liquids. By S. D. Hamann and J. A. Lambert	18
Molecular Correlations in Cell Theories of Liquids and Solutions. By J. A. Barker	28
The Empirical Calculation of True Dipole Moments from the Apparent Values Shown by Solutes in Carbon Tetrachloride. By C. G. Le Fèvre and R. J. W. Le Fèvre	33
The Surface Viscosity of Soluble Films. By W. E. Ewers and R. A. Sack	40
The Kjeldahl Determination of Nitrogen: A Critical Study of Digestion Conditions—Temperature, Catalyst, and Oxidizing Agent. By H. A. McKenzie and Heather S. Wallace	55
pK Values and Reactivity to Nitrous Acid of Some Glutamine and Asparagine Dipeptides. By S. J. Leach and H. Lindley	71
Studies on the Lignin of $Eucalyptus\ regnans$ F. Muell. X. The Ethanolysis of an Isolated Alkali Lignin. By J. W. T. Merewether	. 75
The Constitution of Gmelinol. III. Final Elucidation. By A. J. Birch, G. K. Hughes, and Estelle Smith	83
Alkaloids of the Australian Rutaceae: Evodia xanthoxyloides F. Muell. IV. The Structures of Evoxine and Evoxoidine. By F. W. Eastwood, G. K. Hughes, and E. Ritchie	
The Alkaloids of Cryptocarya angulata C. T. White and C. triplinervis R.Br. By R. G. Cooke and H. F. Haynes	99
The Chemical Constituents of <i>Himantandra</i> Species. I. The Lignins of <i>Himantandra baccata</i> Bail. and <i>H. belgraveana</i> F. Muell. By G. K. Hughes and E. Ritchie	
Crytopleurine: An Alkaloid of Cryptocarya pleurosperma White & Francis. By E. Gellert and N. V. Riggs	
Short Communications	
A Suggestion Concerning the Pressure-Induced Contraction of Muscle. By S. D. Hamann	121
The Occurrence of Macrozamin in the Seeds of Cycads. By N. V. Riggs	123
The Saponin of <i>Doryanthes palmeri</i> W. Hill. By J. L. Courtney, W. J. Dunstan, and J. J. H. Simes	124
Corrigendum	126

NUMBER 2, MAY 1954

	PAGE
Statistics of Nearest-Neighbour Dipole and Exchange Interactions. By J. A. Barker	127
The Calculation of Atomic Polarization. By R. J. W. Le Fèvre and D. A. A. S. Narayana Rao	135
Reaction between a Mercury Surface and Some Flotation Reagents: An Electrochemical Study. By S. G. Salamy and J. C. Nixon	146
The Kinetics of Decarboxylation of Uronic Acids, Polysaccharides, and Oxycelluloses. By A. Meller \dots	157
Some Nitro- and Amino-Compounds Prepared from Naturally Occurring 2,2-Dimethylchromenes. By D. J. McHugh and S. E. Wright \dots	166
Studies in Relation to Biosynthesis. IV. Angustifolionol. By A. J. Birch, Patricia Elliott, and A. R. Penfold	169
The Preparation of Some Dipeptides containing Asparagine, Aspartic Acid, and Glutamine. By S. J. Leach and H. Lindley	173
The Chemical Constituents of Australian Flindersia Species. V. The Constituents of F. maculosa Lindl. By R. F. C. Brown, P. T. Gilham, G. K. Hughes, and E. Ritchie	181
The Partition Separation of Tropane Alkaloids. By W. Bottomley and P. I. Mortimer	189
Short Communications	
Improved Technique for Oscillographic Studies of Electrode Processes: The Reduction of Chromium Compounds and of Hydrogen Peroxide.	
By J. H. Green	197
A Note on the Helferich Reaction. By M. A. Jermyn	202
A New Synthesis of 7,4'-Dimethoxy-3-phenylcoumarin. By R. B. Bradbury	206
W.Chlancockellastic Add Do D. Laborton and J. D. D.	
N-Chloroacetylisatic Acid. By R. Johnstone and J. R. Price	209

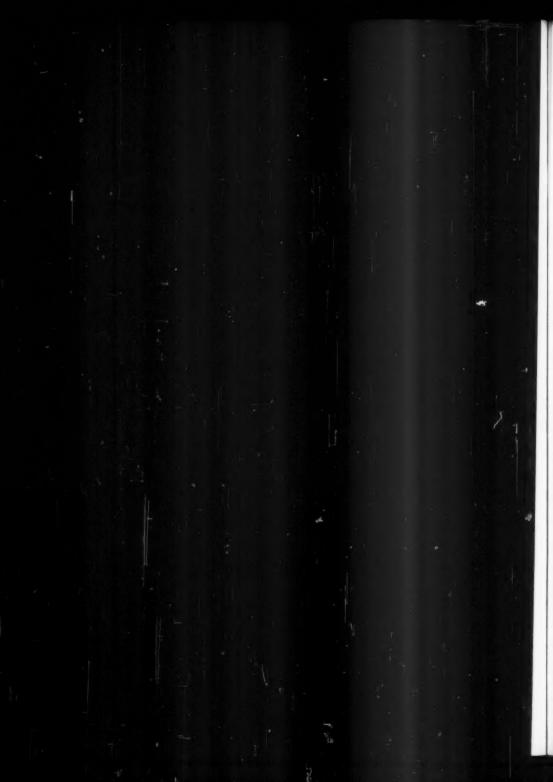
NUMBER 3, AUGUST 1954

*	PAGE
Numerical Calculations of Molecular Orbitals. By R. B. Potts and I. S. Walker	211
The Behaviour of Fluids of Quasi-Spherical Molecules. III. Surface Tensions. By S. D. Hamann and J. A. Lambert	219
Theory of Alternating Current Polarography. I. Equation of the Reversible A.C. Polarographic Wave. By B. Breyer and S. Hacobian	225
Direct Current Polarography in the Presence of Alternating Voltages. I. Reversible Systems. By G. S. Buchanan and R. L. Werner	239
Charge Densities and Surface Conductances at Solid-Solution Interfaces. By D. J. O'Connor, N. Street, and A. S. Buchanan	245
Reduction by Dissolving Metals. X. Aromatic Compounds Containing Electron Sinks. By A. J. Birch, Patricia Hextall, and S. Sternhell	256
Reduction by Dissolving Metals. XI. The Action of Potassium and Alcohols on Some Monobenzenoid Substances. By A. J. Birch, A. Fogiel, and G. J. Harvey	261
Liquid-Vapour Equilibria. IV. The System Ethanol +Benzene at 45 °C. By I. Brown and F. Smith	264
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	269
The Alkaloids of $Evodia\ littoralis\ Endl.$ By R. G. Cooke and H. F. Haynes	273
The Alkaloids of <i>Heliotropium europaeum</i> L. I. Heliotrine and Lasiocarpine. By C. C. J. Culvenor, L. J. Drummond, and J. R. Price	
The Alkaloids of <i>Heliotropium europaeum</i> L. II. Isolation and Structures of the Third Major Alkaloid and Two Minor Alkaloids, and Isolation of the Principal N-Oxides. By C. C. J. Culvenor	
The Sesquiterpene Alcohol of <i>Myoporum crassifolium</i> Forst. By K. G. O'Brien, A. R. Penfold, M. D. Sutherland, and R. L. Werner	
Short Communications	
The Steric Configuration of Eudesmol. By A. J. Birch and K. M. C. Mostyn	
The Reaction of Cyanogen with Methylmagnesium Iodide and Methylmagnesium Bromide. By K. R. Lynn	

NUMBER 4, NOVEMBER 1954

	PAGE
Alternating Current Polarography of Organic Compounds. I. General Introduction and Theory. By B. Breyer, H. H. Bauer, and S.	
Hacobian	305
Direct Current Polarography in the Presence of Alternating Voltages. II. Irreversible Systems. By G. S. Buchanan and R. L. Werner	312
The Oscillating Jet Method for the Measurement of Surface Tension. By K. L. Sutherland	319
The Volume Change on Ionization of Weak Electrolytes. By S. D. Hamann and S. C. Lim	329
The Mechanism of the Cannizzaro Reaction of Formaldehyde. By R. J. L. Martin	335
The Chemical Constituents of Australian <i>Flindersia</i> Species. VI. The Structure and Chemistry of Flindersine. By R. F. C. Brown, J. J. Hobbs, G. K. Hughes, and E. Ritchie	
The Alkaloids of Senecio jacobaea L. I. Isolation of the Alkaloids and Identification of Jacodine as Seneciphylline. By R. B. Bradbury and C. C. J. Culvenor	
Asarinin in Acronychia muelleri W. D. Francis. By J. B. Davenport and M. D. Sutherland	
The Action of Unsaturated Aldehydes on Wool. By J. R. McPhee and M. Lipson	
Short Communications	
The Forces between Centro-Symmetric Molecules. By J. S. Rowlinson	397
The Dissociation Constant of Methylene Glycol (Formaldehyde Hydrate).	
By R. J. L. Martin	400
Index to Volume 7	407





INDEX

PAGE		PAGE
A.C. Polarographic Wave, Equation of the Reversible. 225	Barker, J. A.— Molecular Correlations in Cell	
A.C. Polarography of Organic	Theories of Liquids and	
Compounds 305	Solutions	28
Acetonitrile + Carbon Tetra-	Statistics of Nearest-Neigh-	
chloride at 45 °C, The System 269 Acronychia muelleri W. D.	bour Dipole and Exchange Interactions	127
Francis, Asarinin in 384		124
Alcohols and Potassium, The	Bauer, H. H.—See Breyer, B., and Hacobian, S	305
Action of, on Some Ben-	Benzene + Ethanol at 45 °C,	000
zenoid Substances 261	The System	264
Aldehydes on Wool, Action of Unsaturated	Benzenoid Substances, The	
Alkali Lignin, The Ethanolysis	Action of Potassium and	
of an Isolated 75	Alcohols on	261
Alkaloids of Australian Rutaceae 87	Biosynthesis, Studies in Re-	* 00
Alkaloids of Cryptocarya angulata C. T. White and C.	lation to	169
triplinervis R. Br 99	Bireh, A. J., Elliott, Patricia, and Penfold, A. R.—	
Alkaloids of Cryptocarya pleuro-	Studies in Relation to Bio-	
sperma White & Francis 113	synthesis. IV. Angusti-	
Alkaloids of Evodia littoralis	folionol	169
Alkalaids of Heliotronium	Birch, A. J., Fogiel, A., and	
Endl	Harvey, G. J.— Reduction by Dissolving	
Alkaloids of Senecio jacobaea L.,	Metals. XI. The Action of	
Isolation of the 378	Potassium and Alcohols on	
Alkaloids, Tropane, The Par-	Some Monobenzenoid Sub-	
Amino- and Nitro-compounds	stances	261
Prepared from 2,2-Dimethyl-	Birch, A. J., Hextall, Patricia, and Sternhell, S.—	
	Reduction by Dissolving	
chromenes	Metals. X. Aromatic Com-	
Aromatic Compounds contain-	pounds containing Electron	250
ing Electron Sinks 256	Sinks Birch, A. J., Hughes, G. K., and	256
Asarinin in Acronychia muelleri W. D. Francis 384	Smith, Estelle—	
W. D. Francis 384 Asparagine, Preparation of Some	The Constitution of Gmelinol.	
Dipeptides containing 173	III. Final Elucidation	83
Asparagine Dipeptides, pK	Birch, A. J., and Mostyn,	
Values and Reactivity to	K. M. C.— The Steric Configuration of	
Nitrous Acid of 71	Eudesmol	301
Aspartic Acid, The Preparation	Bottomley, W., and Mortimer,	
of Some Dipeptides containing 173	P. I.—	
Atomic Polarization, Calculation of	The Partition Separation of	189
of 135	Tropane Alkaloids	TOB

	PAGE		PAGE
Bradbury, R. B.— A New Synthesis of 7,4'- Dimethoxy - 3 - phenyl -		Cannizzaro Reaction of Formal- dehyde, The Mechanism of the	335
coumarin	206		000
Bradbury, R. B., and Culvenor, C. C. J.—	200	Carbon Tetrachloride + Aceto- nitrile at 45 °C, The System	269
The Alkaloids of Senecio jacobaea L. I. Isolation of the Alkaloids and Identi-		Cell Theories of Liquids and Solutions, Molecular Correla- tions of	-28
fication of Jacodine as Seneciphylline	378	Centro - Symmetric Molecules, The Forces between	397
Breyer, B., Bauer, H. H., and Hacobian, S.—		Charge Densities at Solid-Solution Interfaces	245
Alternating Current Polaro-		N-Chloroacetylisatic Acid	209
graphy of Organic Com-		Chromenes, 2, 2 - Dimethyl-,	-
pounds. I. General Intro- duction and Theory Breyer, B., and Hacobian, S.—	305	Nitro-, and Amino-compounds Prepared from	166
Theory of Alternating Current		Chromium Compounds and	
Polarography. I. Equation of the Reversible A.C.		Hydrogen Peroxide, The Reduction of	197
Polarographic Wave	225		201
Brown, I., and Smith, F		Conductances, Surface, at	015
Liquid - Vapour Equilibria.		Solid-Solution Interfaces	245
IV. The System Ethanol +		Cooke, R. G., and Haynes,	
Benzene at 45 °C	264	H. F.—	
V. The System Carbon		The Alkaloids of Cryptocarya	
Tetrachloride + Aceto-	200	angulata C. T. White and	00
nitrile at 45 °C	269	C. triplinervis R.Br	99
Brown, R. F. C., Gilham, P. T.,		The Alkaloids of Evodia	
Hughes, G. K., and Ritchie, E.—		littoralis Endl	273
The Chemical Constituents		Corrigendum	126
of Australian Flindersia		Courtney, J. L., Dunstan, W. J.,	
of Australian <i>Flindersia</i> Species. V. The Con-		and Simes, J. J. H.—	
stituents of F. maculosa		The Saponin of Doryanthes	
Lindl	181	palmeri W. Hill	124
Brown, R. F. C., Hobbs, J. J.,		Cryptocarya angulata C. T.	00
Hughes, G. K., and Ritchie, E.—		White, Alkaloids of	99
The Chemical Constituents		Cryptocarya pleurosperma White	119
of Australian Flindersia		& Francis, Alkaloids of	113
Species. VI. The Structure		Cryptocarya triplinervis R.Br.,	
and Chemistry of Flin-		Alkaloids of	99
dersine	348	Cryptopleurine	113
Buchanan, A. S See O'Connor,		Culvenor, C. C. J.—	
D. J., and Street, N.	245	The Alkaloids of Heliotropium	
Buchanan, G. S., and Werner,		europaeum L. II. Isolation	
R. L.—		and Structures of the Third	
Direct Current Polarography		Major Alkaloid and Two	
in the Presence of Alter-		Minor Alkaloids, and Isola-	
nating Voltages—		tion of the Principal N-	00=
I. Reversible Systems	239	Oxides	287
II. Irreversible Systems	312	See Bradbury, R. B	378

	D A 6132	DAGT
Culvenor, C. C. J., Drummond, L. J., and Price, J. R.— The Alkaloids of <i>Heliotropium</i> europaeum L. I. Heliotrine	PAGE	Eastwood, F. W., Hughes, G. K., and Ritchie, E.— Alkaloids of the Australian Rutaceae: Evodia xantho-
and Lasiocarpine	277	xyloides F. Muell. IV. The Structures of Evoxine and
Cyanogen, The Reaction of, with Methylmagnesium Iodide and Bromide	303	Evoxoidine 87 Electrochemical Study: Re-
Cycads, Macrozamin in the Seeds of	123	action between a Mercury Surface and Some Flotation Reagents
Davenport, J. B., and Sutherland, M. D.—		Electrode Processes, Oscillo- graphic Studies of 197 Electrolytes, Weak, Volume
Asarinin in Acronychia muelleri W. D. Francis	384	Change on Ionization of 329 Electron Sinks, Aromatic Com-
D.C. Polarography in the Presence of Alternating		pounds Containing 256 Elliott, Patricia — See Birch,
Voltages 239,	312	A. J., and Penfold, A. R 169
Decarboxylation of Uronic Acids, Polysaccharides, and Oxycelluloses	157	Ethanol + Benzene at 45 °C, The System 264
Densities, Charge, at Solid-		Eudesmol, The Steric Configura- tion of 301
Solution Interfaces	245	Evodia littoralis Endl., The Alkaloids of 273 Evodia xanthoxyloides F. Muell.,
Determination of Nitrogen	55	Alkaloids of 87
7,4' - Dimethoxy - 3 - phenyl- coumarin, A New Synthesis of	206	Evoxine and Evoxoidine, Structure of 87
2,2-Dimethylchromenes, Nitro- and Amino-compounds Pre- pared from	166	Ewers, W. E., and Sack, R. A.— The Surface Viscosity of Soluble Films 40
Dipeptides, Asparagine, pK Values and Reactivity to Nitrous Acid of	71	Films, Soluble, Surface Viscosity of
Dipeptides, Preparation of	173	Flindersia maculosa Lindl., The
Dipole Interactions, Statistics of	127	Constituents of 181 Flindersia Species, Australian,
Dipole Moments, The Empirical Calculation of True, from the		The Chemical Constituents of 181, 348
Apparent Values shown by Solutes in Carbon Tetra- chloride	33	Flindersine, The Structure and Chemistry of 348
Dissociation Constant of Methylene Glycol	400	Flotation Reagents and a Mercury Surface, Reaction between
Doryanthes palmeri W. Hill, The Saponin of	124	Fluids of Quasi-Spherical Mole- cules, The Behaviour of 1, 18, 219
Drummond, L. J.—See Culvenor, C. C. J., and Price, J. R		Fogiel, A.—See Birch, A. J., and Harvey, G. J 261
Dunstan, W. J.—See Courtney, J. L., and Simes, J. J. H.	124	Forces between Centro-Symmetric Molecules, The 397

	PAGE	PAGE
Formaldehyde Hydrate (Methylene Glycol), The Dissocia-		Helferich Reaction, A Note on the 202
tion Constant of	400	Heliotrine and Lasiocarpine 277
Formaldehyde, The Mechanism of the Cannizzaro Reaction of	335	Heliotropium europaeum L., The Alkaloids of 277, 287
Gases and Liquids, High		Hextall, Patricia—See Birch, A. J., and Sternhell, S 256
Density	18	Himantandra baccata Bail. and
Gellert, E., and Riggs, N. V.— Cryptopleurine: An Alkaloid		H. belgraveana F. Muell., The Chemical Constituents of 104
of Cryptocarya pleurosperma White & Francis		Hobbs, J. J. — See Brown, R. F. C., et al 348
Gilham, P. T See Brown,		Hughes, G. K.—
R. F. C., et al	181	See Birch, A. J., and Smith, Estelle 83
Glutamine Dipeptides, pK		
Values and Reactivity to		See Brown, R. F. C., et al. 181, 348
Nitrous Acid of Glutamine, The Preparation of	71	See Eastwood, F. W., and Ritchie, E 87
Some Dipeptides Containing	173	Hughes, G. K., and Ritchie, E.—
Gmelinol, The Constitution of	83	The Chemical Constituents of
Green, J. H.—		Himantandra Species. I.
Improved Technique for		The Lignins of Himan-
Oscillographic Studies of Electrode Processes: The		tandra baccata Bail. and H. belgraveana F. Muell 104
Reduction of Chromium		belgraveana F. Muell 104 Hydrogen Peroxide and
Compounds and of		Chromium Compounds, The
Hydrogen Peroxide	197	Reduction of 197
Hacobian, S.—		Ionization of Weak Electro-
See Breyer, B	225	lytes, The Volume Change on 329
See Breyer, B., and Bauer,		Irreversible Systems 312
п. п	305	222010200000000000000000000000000000000
Hamann, S. D.— A Suggestion Concerning the		Jacodine as Seneciphylline,
Pressure-Induced Contrac-		Identification of 378
tion of Muscle		Jermyn, M. A.—
Hamann, S. D., and Lambert,		A Note on the Helferich Reaction 202
J. A.—		Jet, Oscillating, Method for the
The Behaviour of Fluids of Quasi-Spherical Molecules—		Measurement of Surface Ten-
I. Gases at Low Den-		sion 319 Johnstone, R., and Price, J. R.—
sities	-	
II. High Density Gases		N-Chloroacetylisatic Acid 209
and Liquids		Kinetics of Decarboxylation of
III. Surface Tensions		Uronic Acids, Polysaccharides,
Hamann, S. D., and Lim, S. C.— The Volume Change on		and Oxycelluloses 157
Ionization of Weak Electro		and Oxycelluloses 157 Kjeldahl Determination of
lytes	329	Nitrogen 55
Harvey, G. J See Birch, A. J.	,	Total T A Go House
and Fogiel, A	261	Lambert, J. A.—See Hamann,
Haynes, H. F.—See Cooke	0 079	S. D 1, 18, 219
R. G 9	9, 213	Lasiocarpine and Heliotrine 277

PA	AGE	PAGE
Leach, S. J., and Lindley, H.— pK Values and Reactivity to Nitrous Acid of Some		McPhee, J. R., and Lipson, M.— Action of Unsaturated Aldehydes on Wool 387
Glutamine and Asparagine Dipeptides	71	Macrozamin, The Occurrence of, in the Seeds of Cycads 123
Dipeptides containing Asparagine, Aspartic Acid,	173	Martin, R. J. L.— The Dissociation Constant of Methylene Glycol (Formal- dehyde Hydrate) 400
R. J. W.— The Empirical Calculation of		The Mechanism of the Can- nizzaro Reaction of Formal-
True Dipole Moments from the Apparent Values Shown by Solutes in Carbon Tetra-		dehyde
chloride W.—See Le Fèvre, C. G	33	tion of Uronic Acids, Poly- saccharides, and Oxycel- luloses
Le Fèvre, R. J. W., and Narayana Rao, D. A. A. S.— The Calculation of Atomic	105	Mercury Surface and Some Flotation Reagents, Reaction between
Polarization Lignin of Eucalyptus regnans F. Muell., Studies on the Lignins of Himantandra baccata	135 75	Merewether, J. W. T.— Studies on the Lignin of Eucalyptus regnans F. Muell. X. The Ethanolysis of an
Bail, and <i>H. belgraveana</i> F. Muell	104	Isolated Alkali Lignin 75 Metals, Reduction by Dissolving
Lim, S. C.—See Hamann, S. D. Lindley, H.—See Leach, S. J. 71,	329 173	256, 261 Methylene Glycol, the Dissociation Constant 400
Liquid-Vapour Equilibria 264, Liquids and Solutions, Cell		Methylmagnesium Iodide and Bromide. The Reaction of
Theories of	28	Molecular Correlations of Cell Theories of Liquids and Solu-
with Methylmagnesium Iodide and Methylmag- nesium Bromide	303	Molecular Orbitals, Numerical Calculations of 211
McHugh, D. J., and Wright, S. E.—		Molecules, Centro - Symmetric, The Forces between 397
Some Nitro- and Amino- compounds Prepared from		Molecules, Quasi - Spherical, Fluids of 1, 18, 219
Naturally Occurring 2,2- Dimethylchromenes	166	Mortimer, P. I.—See Bottomley, W 189
McKenzie, H. A., and Wallace, Heather S— The Kjeldahl Determination		Mostyn, K. M. C. — See Birch, A. J 301
of Nitrogen: A Critical Study of Digestion Con- ditions—Temperature,		Muscle Contraction, Pressure- Induced, A Suggestion Con- cerning
Catalyst, and Oxidizing Agent	55	Myoporum crassifolium Forst., The Sesquiterpene Alcohol of 298

	PAGE	PAGE
Narayana Rao, D. A. A. S.—See Le Fèvre, R. J. W	135	Potassium and Alcohols, The Action of, on Some Benzenoid
Nitro- and Amino-Compounds Prepared from 2,2-Dimethyl-	166	Substances
chromenes Nitrogen, Kjeldahl Determina-	166	Molecular Orbitals 211
tion of Nitrous Acid, pK Values and Reactivity to, of Asparagine	55	Price, J. R.— See Culvenor, C. C. J., and Drummond, L. J 277
and Glutamine Dipeptides	71	See Johnstone, R 209
Nixon, J. C.—See Salamy, S. G.	146	O de la la la la Malanda de D
O'Brien, K. G., Penfold, A. R., Sutherland, M. D., and		Quasi-spherical Molecules, Behaviour of Fluids of 1, 18, 219
Werner, R. L.— The Sesquiterpene Alcohol of Myoporum crassifolium Forst.		Reduction of Chromium Compounds and Hydrogen Peroxide 197
O'Connor, D. J., Street, N., and	298	Reduction by Dissolving Metals 256, 261
Buchanan, A. S.— Charge Densities and Surface Conductances at Solid-		Reversible A.C. Polarographic Wave, The Equation of the 225
Solution Interfaces	245	Reversible Systems 239
Orbitals, Molecular, Numerical Calculations of	211	Riggs, N. V.— The Occurrence of Macro-
Oscillating Jet Method for the Measurement of Surface Ten-		zamin in the Seeds of Cycads 123 See Gellert, E 113
oscillographic Studies of Electrode Processes	319 197	Ritchie, E.— See Brown, R. F. C., et al. 181, 348 See Eastwood, F. W., and
N-Oxides, Isolation of the Principal, of H. europaeum L.	287	Hughes, G. K 87 See Hughes, G. K 104
Organic Compounds, A.C. Polarography of	305	Rowlinson, J. S.— The Forces between Centro-
Oxycelluloses, Decarboxylation	000	Symmetric Molecules 397
of	157	Sack, R. A.—See Ewers, W. E. 40
Penfold, A. R.— See Birch, A. J., and Elliott, Patricia	169	Salamy, S. G., and Nixon, J. C.— Reaction between a Mercury Surface and Some Flota- tion Peacette.
See O'Brien, K. G., et al	298	tion Reagents : An Electro- chemical Study 146
Polarization, Atomic, Calculation of	135	Saponin, The, of Doryanthes palmeri W. Hill 124
Polarography, A.C., of Organic Compounds	305	Senecio jacobaea L., The Al- kaloids of 378
Polarography, A.C., Theory of Polarography, D.C., in the	225	Seneciphylline, Identification of Jacodine as 378
Presence of Alternating		Sesquiterpene Alcohol of M. crassifolium Forst 298
Polysaccharides, Decarboxylation of		Simes, J. J. H.—See Courtney, J. L., and Dunstan, W. J 124

P.	AGE	PAG	E
Smith, Estelle—See Birch, A. J.,		Tension, Surface, The Oscil-	
and Hughes, G. K	83	lating Jet Method for the	
Smith, F.—See Brown, I. 264,	269	Measurement of 31	9
Solutes in Carbon Tetrachloride,		Tropane Alkaloids, The Par-	
The Apparent Values Shown		tition Separation of 18	39
by, Calculation of True Dipole			
Moments from	33	Uronic Acids, Decarboxylation	
Solutions and Liquids, Cell		of 15	16
Theories of	28		
Steric Configuration of Eudesmol	301	Viscosity, Surface, of Soluble	
Sternhell, S.—See Birch, A. J.,		Films 4	10
and Hextall, Patricia	256	Volume Change on Ionization	
Street, N.—See O'Connor, D. J.,		of Weak Electrolytes 32	29
and Buchanan, A. S	245	*	
Surface Conductances at Solid-		Walker, I. S.—See Potts, R. B. 21	11
Solution Interfaces	245		
Surface Tension, The Oscillating		Wallace, Heather S. — See	
Jet Method for the Measure-		McKenzie, H. A	55
ment of	319	Werner, R. L.—	
Sutherland, K. L.—		See Buchanan, G. S 239, 3	12
The Oscillating Jet Method		See O'Brien, K. G., et al 29	98
for the Measurement of	210	Wool, Action of Unsaturated	
Surface Tension	319		87
Sutherland, M. D.—	001		
See Davenport, J. B	384	Wright, S. E.—See McHugh,	ee
See O'Brien, K. G., et al	298	D. J 10	90